

PA 3/49T38

USBR/Electronics  
Circuits, Electronic  
Regulators, Electronic

MAY 48

"Vacuum Tube Automatic Machine Regulator With Broad  
Range of Regulation," L. V. Karyushin, Docent  
P. K. Kulikovskiy, Candidates Tech Sci, Sci Res  
Lab for the Electrification of Industries of the  
"Sovzupielektromontazh" Trust, 2 pp

"Elektrichestvo" No 5

Gives results of research to determine best construction for automatic regulator for electric machinery, having maximum reliability, rapid action and stability of regulation, to base the control circuit  
3/49T38

MAY 48

USBR/Electronics (Contd)  
on the regulating object, and to increase accuracy of dynamic regulation.

KULIKOVSKIY, P. K. DOCENT

3/49T38

KULIKOVSKIY P. K.

Kulikovskiy P. K., "Electronic and Electro-mechanical Regulators of Speed  
Coordination between Sections," in his book Elektrooborudovaniye  
mashin tsellyulozno-bumazhnoy promyshlennosti / Electric Equipment on  
Machines for the Cellulose and Paper Industry, Moscow and Leningrad,  
Gosenergoizdat, 1953, Pages 277-294, with illustrations.

ALL-REVENUE, R. E.

Elektrooborudovanie mashin tselululozno-bumazhnoi promyshlennosti (Electrical  
equipment of machines of the wood-pulp and paper industry). Moskva,  
Gosenergoizdat, 1953. 356 p.

SO: Monthly List of Russian Accessions, Vol. 7, No. 7, Oct. 1954

KULIKOVSKIY, Petr Konstantinovich, kand. tekhn.nauk; SHUSTOV,  
Aleksandr Dmitriyevich, inzh.; VOL'MAN, N.S., red.;  
SOBOLEVA, Ye.M., tekhn. red.

[Electric drives for machinery in the cellulose and paper-  
making industry]Elektroprivod mashin tselliulozno-  
bumazhnoi promyshlennosti. Moskva, Gosenergoizdat, 1962.  
371 p. (MIRA 16:4)

(Cellulose)

(Paper-making machinery--Electric driving)

KULIKOVSKIY, P. P.

Marine Eng.  
Heat

DECEASED  
c. '60

1962/  
7

see 14C

KULIKOVSKIY, R. E.

"Synthesis of Sweep (Pulse) Forming Four-Terminal Networks" Cand Tech Sci,  
Faculty of Radio Communications and Radio Broadcasting, Moscow Electrical Engineering  
Inst of Communications, 1953-1954. (VS, Jan 55) (Brief abstract available)

Survey of Scientific and Technical Dissertations Defended at USSR Higher  
Educational Institutions (12)  
SO: Sum. No. 556, 24 Jun 55

133-8-19/28

AUTHORS: Kulikovskiy, S.A., Kalyuzhnyy, A.N., Barg, M.M. and  
Zeylikovich, B.Ya., Engineers

TITLE: Experience in the application of a protective atmosphere.  
(Opyt primeneniya zashchitnoy atmosfery).

PERIODICAL: "Stal'" (Steel), No.8, 1957, pp. 740-744 (USSR).

ABSTRACT: A description of equipment for annealing sheets in a protective atmosphere (muffle with a sand seal, covered by a refractory lined hood) is given (Fig.1). The protective atmosphere is obtained by combustion of producer gas (from anthracite) purified with monoethanolamine. After cooling to 25-30 C the combustion products are again purified from CO<sub>2</sub> with monoethanolamine and dried with aluminosilicagel and silicagel. The installation for the generation of the protective atmosphere was designed by Stal'projekt (Figs.2 and 4). Initial difficulties encountered and methods of their elimination are described. Changes of the main indices of the protective atmosphere in the course of a satisfactory annealing (without oxidation of edges) are shown in Fig.5. It is stated that the production of clean annealed sheets without traces of oxidation permitted either to avoid or to reduce considerably the subsequent pickling process (no data given).

Card 1/2

133-8-19/28

Experience in the application of a protective atmosphere.  
(Cont.)

There are 5 figures.

ASSOCIATION: Novomoskovsk Sheet Rolling Works. (Novomoskovskiy  
Zhestekatal'nyy Zavod).

AVAILABLE: Library of Congress

Card 2/2



KULIKOVSKIY, V.

In boundaries of the main area. Grazhd. av. 17 no. 11:4-5  
N '60.

(Airplanes--Dispatching)

(MIRA 13:12)

KULIKOVSKIY, V.K. [Kulykov'kyi, V.K.], kand.geol.-mineral.nauk

Way to underground treasures. Nauka i zhyttia 11 no.12:24-  
26 D '61.

(Earth--Internal structure) (MIRA 15:2)

BARTOSHEVSKY, V.I. [deceased]; KULEVSKY, V.K.; L'VOVA, I.V.; FIATONOV, A.N.

Functional and petrological characteristics and accessory  
mineralization of some plutons in northern Kazakhstan.  
Sov. nauch. rab. Kiev. un. no. 1:13-25 '63.

(MIR: 18:11)

KULIKOVSKIY, V.K.; PAVLOV, A.I.

Granitoids in Amvrosiyevka District of the Donets Basin.  
Zap. Ukr. otd. Min. ob-va [no.1]:149-152 '62.

(MIRA 16:8)

1. Kiyevskiy gosudarstvennyy universitet, kafedra poleznykh  
iskopayemykh.

KULIKOVSKIY, Yu. E., Candidate Tech Sci (diss) -- "Problems of optimal detection and selection of objectives". Moscow, 1959. 39 pp (Min Higher Educ USSR, Moscow Order of Lenin and Order of Labor Red Banner Higher Tech School im Bauman), 120 copies (KL, No 24, 1959, 138)

LEWICKI, A.; KUBINSKA, H.; KULIKOWSKA, A.; LUKOMSKA, A.

Psychological studies on the mental state of patients treated with  
geriocaline. Neurol. neurochir. psychiat. pol. 12 no.1:63-66 '62.

1. Z Katedry Psychologii Ogolnej Uniwersytetu M. Kopernika w Toruniu  
Kierownik: prof. dr A. Lewicki i Sanatorium Geriatrycznego w Inowroc-  
lawiu Dyrektor: dr B. Snarski.

(GERIATRICS)

KULIKOWSKI, T.

L 19670-65 ENT(m)/EPF(c)/EPF(n)-2/EPR Pr-L/Pa-L/Pu-L JSD

ACCESSION NR: AP4045667

P/0046/64/009/07-0575/0585

AUTHOR: Adamski, L.; Arkuszewski, J. (Arkushevski, Ya.);  
Bednarz, R. (Bednarzh, R.); Jozefowicz, E. T. (Yuzefovich, E. T.);  
Jozefowicz, K. (Yuzefovich, K.); Kaczmarek, W. (Kachmarek, V.);  
Kulikowska, T. (Kulikowska, T.); Malewski, S. (Malevski, S.);  
Mika, J. (Mika, Ya.); Szechter, A. (Shekhter, A.); Weiss, Z.  
 (Vayss, Zl); Bryhn-Ingebrigtsen, K. (Bry\*n-Ingebrigt\*sen, K.);  
Smit, J. (Smit, I.); Stamm'ler, R. I. I. (Stamm'ler, R. I. I.);  
Jockovic, M. (Iotakovich, M.); Pop-Jordanov, J. (Pop-Iordanov, I.);  
Takac, S. (Takach, M.)

TITLE: Microscopic neutron flux distributions in unit cells of critical assemblies of the NPY Project

SOURCE: Nukleonika, v. 9, no. 7-8, 1964, 575-585

TOPIC TAGS: neutron distribution, reactor physics, intracell neutron distribution, unit cell, critical reactor, NPY project

ABSTRACT: This article, which is one of the first official reports

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L 19670-65

ACCESSION NR: AP4045667

of the NPY Project, contains a preliminary study of intracell neutron distributions in three critical assemblies operating in Norway, Poland, and Yugoslavia. The NPY lattices that were studied and the experimental techniques used in three zero-power reactors (NORA, ANNA, and RB) are discussed and experimental and theoretical results are given in tabular form (refer to the Enclosures). The computational methods used in Norway and applied to the NPY lattices involved the use of two integral transport codes (available for use on the Ferranti Mercury computer) developed by the Netherlands-Norwegian K-7 Project at Kjeller-K-7 THERMOS and K-7 TRANSP; cross-sections used in these codes are given in tables. Two analytical methods were used in Poland: the first, used for NORA and ANNA, made use of a one-group Amouyal-Benoist approach applied to a multilayer system; the second used the Laguerre polynomial expansion for distributions in the moderator. Two computational methods were employed in Yugoslavia: a standard one-velocity P<sub>3</sub> method with isotropic flux return at the outer boundary and an improved analytical neutron thermalization method developed in Yugoslavia. The experimental and theoretical results obtained for NORA lattices show that the experimental values

Card 2/7



L 19670-65

ACCESSION NR: AP4045667

3  
of the disadvantage factors lie within the range of theoretical values obtained by different methods. Orig. art. has: 3 figures and 6 tables.

ASSOCIATION: Institute of Atomic Energy, Kjeller, Norway; Institute of Nuclear Research, Swierk, Poland; Boris Kidrich Institute of Nuclear Sciences, Vincha, Yugoslavia

SUBMITTED: 00

ENCL: 04

SUB CODE: NP

NO REF SOV: 002

OTHER: 020

Card 3/7

SECRET

RU/0046/65/0:0/001/0001/0010

SECRET  
Kulikowska, Teresa (Kulikowska, T.)

**"APPROVED FOR RELEASE: 08/23/2000**

**CIA-RDP86-00513R000927430005-1**

**APPROVED FOR RELEASE: 08/23/2000**

**CIA-RDP86-00513R000927430005-1"**

KULIKOWSKI, Aleksander (Szczecin, ul. Wincentego Pola 3)

Clinical studies on biological limits in designing of movable partial and full prostheses. Czasopismo stomat. 7 no.7:297-304 July 54.

1. Z Zakładu Protetyki Stomatologicznej Akademii Medycznej w Szczecinie. Kierownik: doc. dr A.Kulikowski.

(DENTAL PROSTHESIS,

indic. for partial & full prostheses)

COUNTRY : POLAND  
 CATEGORY : Chemical Technology. Chemical Products and Their Applications. Chemical Processing of Solid Fossils  
 AEC. JOUR. : BZKhim., No 10, 1959, No. 65056  
 AUTHOR : Kaczkiewicz, L; Kulikowski, G.  
 INSTITUTE : --  
 TITLE : Ways of Reducing the Consumption of Binding Materials in the Briquetting of Semi-Coke  
 ORIG. PUB. : Koks, stola, polz, 1958, 3, No 5, 180-184

ABSTRACT : Method of manufacturing briquettes (B) from semi-coke developed by the Institute of Chemical Refining of Coal (PIR) is described. The method permits reduction of the binder consumption by means of determining optimum water quantities, of lowering its surface tension (E) and by employing water-ter emulsions. Quantities of the injected water, effect to a considerable degree the mechanical strength of B only when the content of binding agent  $\leq 10\%$ . Instead

\*Figs.

Cards:

1/2

H - 71

UTIM :  
CATEGORY :

ABS. JOUR. : RZhKhim., No 19, 1959, No. 69652

AUTHOR :  
TAKEN FROM :

ORIG. PUB. :

ABSTRACT : when appropriately adjusted to specific charac-  
teristics of ray cool. For Part I, see Ref. Zhur.  
Khimiya, 1959, No 11, 39650. --D. Isikarev

Card: 2/2

KULIKOWSKI, Ginter

Possibilities for increasing the output of a fluidized bed coking installation. Koks 5 no.6:208-210 N-D '60.

1. Instytut Chemiczny Przerobki Węgla, Zabrze.

KULIKOWSKI J.

KULIKOWSKI, J. Guiding principles of a program of the development of sea  
fishery. p. 328. Vol. 6, no. 12, Dec. 1956. TECHNIKA I GOSPODARKA  
MORSKA. Gdansk Poland

SOURCE: East European Accessions List (EEAL) Vol. 6, No. 4--April 1957



KULIKOWSKI, J.

Induced anisotropy in Ni- and Mn-ferrites with iron excess  
and small addition of cobalt. Bul Ac Pol tech 12 no.8:  
613-617 '64.

1. Research Laboratory of the Polfer Works, Warsaw. Presented  
by A.K. Smolinski.

Calculation method for axial short-circuit current  
Calculation method for axial short-circuit current adapted

**"APPROVED FOR RELEASE: 08/23/2000**

**CIA-RDP86-00513R000927430005-1**

**APPROVED FOR RELEASE: 08/23/2000**

**CIA-RDP86-00513R000927430005-1"**

✓

6045

660.112.238.1.002.3:669.74:669.3

Bragiński A., Kulikowski J., Makolągwa S. Manganese-Zinc Ferrites,  
„Ferryty manganowo-cynkowe”. Przegląd Telekomunikacyjny. No.  
8-9, 1958, pp. 231-239, 19 figs., 3 tabs.

This paper indicates how advisable it is to use Mn-Zn ferrites having a high permeability over the frequency range of up to 1 megacycle. Present views are discussed concerning the crystalline structure of the ferrites under discussion, the oxidation and reduction process, and the effect of this process on the magnetic permeability. Information is included concerning the effect of additions (ingredients) and the size of crystals upon the magnetic properties, together with a comparison of the properties of a few items now being produced in Poland and abroad.

Pa  
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MH

21 4  
1-JOJ (MAY)

BRAGINSKI, Aleksander, mgr inż.; KULIKOWSKI, Jacek, mgr nauk techn., mgr inż.; MAKOLAGWA, Stefan, inż.

Temperature coefficients of the permeability of Mn-Zn ferrites.  
Prace Inst teletechn 3 no.1:3-40 '59.

1. Zakład Materialow Magnetycznych, Biuro Badawcze, Instytut  
Telei Radiotechniczny, Warszawa.

24.9900

S/196/62/000/018/004/017  
E194/E155

AUTHORS: Ciaston, Wladyslaw, Kulikowski, Jacek, and  
Makolagwa, Stefan

TITLE: Ferrites of almost rectangular hysteresis loop and  
low values of  $H_{sat}$

PERIODICAL: Referativnyy zhurnal, Elektrotehnika i energetika, .  
no.18, 1962, 3, abstract 18 B 15. (Prace zakl. apar.  
mat. PAN, B, no.8, 1961, 9 s., il.) (Polish).

TEXT: Ferrites of the system Mn-Zn-Fe-O, having the general  
formula  $Mn_z Zn_y Fe_x O_{4+y}$ , were investigated in the range  $1.2 \leq x \leq 2.0$   
and  $0 \leq y \leq 0.4$ . Selected formulations and manufacturing  
procedures ensured an almost rectangular hysteresis loop  
( $S_{max} \geq 0.9$ ) and low value of  $H_{sat}$  ( $\sim 0.3$  oersted approximately).

MgO was introduced into the formula at the expense of other  
components. Cores of this material were used, for example, in  
memory units of computers.

Card 1/1 [Abstractor's note: Complete translation.]

41079

S/058/62/000/008/091/134  
A062/A101

24 2200,

AUTHORS: Ciastoń, W., Kulinowski, J., Makolagwa, S.

TITLE: Mn-Mg-Cd ferrites having rectangular hysteresis loops

PERIODICAL: Referativnyy zhurnal, Fizika, no. 8, 1962, 36, abstract 8E262  
("Prace zakł. apar. mat. PAN", 1961, B, no. 9, 8s., 11., Polish;  
summary in English)

TEXT: An investigation was made of the magnetic properties of the Mn-Mg-Cd-Fe-O system which may be described by the general formula  $M_2Cd_yFe_xO_{4+y}$ ,  $1.4 \leq x \leq 2.2$ ;  $0 \leq y \leq 0.9$ . These ferrites are ranged in the class of magnetically soft materials. The addition therein of a certain quantity of MgO converts them into materials with rectangular hysteresis loops. Likewise the coercive force and the hysteresis loop shape of the  $(MgO)_x(Mn_{0.6}Cd_{0.4}Fe_2O_4)_{1-0.5x}$  system, wherein  $0 \leq x \leq 0.4$ , were investigated. It was found that for any values of x in the investigated range of MgO concentrations the coercive force of these materials is  $< 0.2$  oersted. The rectangularity of the hysteresis loop S varies in dependence of the quantity of  $Mg^{2+}$  ions in the solution;  $S_{max} > 0.9$ .

[Abstracter's note: Complete translation]

Card 1/1

L1005

24,2200,

S/058/62/000/009/028/069  
A006/A101

AUTHORS: Ciastoń, Władysław, Kulikovski, Jacek, Makolagwa; Stefan

TITLE: Mn-Mg-Zn ferrites with almost rectangular hysteresis loop and low coercive force  $H_c$

PERIODICAL: Referativnyy zhurnal, Fizika, no. 9, 1962, 40, abstract 9E285  
("Prace zakł. apar. mat. PAN", 1961, v. B, no. 8, 9 s., ill., Polish) ✓

TEXT: The authors investigated ferrites of the Mn-Zn-Fe-O system described by general formula  $Mn_2Zn_yFe_xO_{4+y}$ , where  $1.2 \leq x \leq 2.0$  and  $0 \leq y \leq 0.4$ . One of these ferrites has a relatively high rectangularity of the hysteresis loop and low coercive force  $H_c$ ; into this ferrite some MgO was introduced with the aid of a special-developed method; the MgO amount replaced proportionally all the other components. Most detailed investigations were made with ferrites of system  $(MgO)_x(Mn_{0.6}Zn_{0.4}Fe_2O_4)_{1-0.5x}$  at  $0 \leq x \leq 0.4$ . In materials of this system the coefficient of rectangularity of the hysteresis loop attains values of  $S > 0.9$  and  $H_c$  of about 0.3 oersted. They can therefore be used as cores in computer storage systems.

[Abstracter's note: Complete translation]

Card 1/1



140555

24.2200

S/196/62/000/017/001/005  
E194/E155

AUTHOR: Kulikowski, Jacek  
TITLE: Influence of small additions of cobalt on the properties of certain Ni-Zn ferrites  
PERIODICAL: Referativnyy zhurnal, Elektrotehnika i energetika, no.17, 1962, 3, abstract 17 B 22. (Prace zakl. apar. mat. PAN, B, no.10, 1961, 9 s., ill.). (Polish: summary in English).  
TEXT: Examples are given of the influence of additions of CoO to the extent of 1.5% mole. to Ni-Zn ferrites of three compositions: with deficiency of  $\text{Fe}_2\text{O}_3$ ; with excess of  $\text{Fe}_2\text{O}_3$ ; and stoichiometric composition. It is shown that the introduction of Co into the ferrites with an  $\text{Fe}_2\text{O}_3$  content of less than 50% sometimes reduces the ratio of  $\tan \delta$  to the initial permeability by a factor of 10 (at a frequency of 10 Mc/s).  
[Abstractor's note: Complete translation.]

Card 1/1

KULIKOWSKI, Jacek

The influence of small admixtures of cobalt on the properties of some Ni-Zn ferrites. Przegl elektroniki 3 no.2:80-84 F '62.

1. Wydzielone Biuro Rozwojowe "Polfer."

L3832

P/053/62/000/007/004/004  
I010/I242

AUTHORS: Ciastoń, Władysław, Kulikowski, Jacek, and  
Makolągwa, Stefan

TITLE: Properties of some Polish ferrites with a square  
hysteresis loop

PERIODICAL: Przegląd Elektroniki, no.7, 1962, 419-430

TEXT: Polish ferrites developed by "Polfer" and by the Zakład  
Aparatów Matematycznych (Department of Mathematical Apparatus) are  
comparable to those produced abroad. The static hysteresis loop  
parameters in three types of Polish ferrites R-1, R-2, R-3 were  
measured using 10x6x6 mm ring samples. The dynamic parameters of  
the cores are listed. The static characteristics show a similar  
characteristics show a similar B for all three types but their loop

Card 1/2

P/053/62/000/007/004/004  
I010/I242

# Properties of some Polish ferrites...

width and the  $H_m$  for the maximum squareness factor  $S$  are different. No material with  $H_c \approx 1.5 - 2.0$  oersteds was found. Dynamically, the R-2 has a very low  $H_m$  opt at which  $\underline{U}_s$  reaches its maximum. Its drawback consists of a long  $\tau$  (3  $\mu$ sec).  $\underline{U}_z$  The R-3 has  $\tau = 1.5 \mu$ sec but its  $H_m$  opt is 3 times higher. The R-1 has intermediate properties so that it is useful both for memory and switching circuits. The measurements proved that the R-2 may be used in automatics, tele-technical systems, ferractor systems of digital machines etc. and R-3 mainly in matrix coincidence memories. The shortest switching time obtained with the R-3 cores is still too long for application in fast computers. Faster elements are being developed. There are 12 figures and 1 table.

ASSOCIATIONS: Zakł<sup>ad</sup> Aparatur Matematycznych i WBR Zakł<sup>ad</sup> Materiał<sup>ow</sup> Magnetycznych (Department of Mathematical Apparatus and WBR Department of Magnetic Materials)

Card 2/2.

Li679  
P/053/62/000/009/002/003  
D271/D300

18571  
AUTHORS:

Ciaston, ~~Madyslag~~, Kulikowski, Jacek and Makolagwa,  
Stefan

TITLE:

Mn-Ni-Zn square loop ferrites with low  $H_c$

PERIODICAL:

Przegląd elektroniki, no. 9, 1962, 545-549.

TEXT:

The development of square loop ferrites with low coercive force is reported. In the temperature range of 1230° - 1360°C the samples were sintered in air, at higher temperatures - in oxygen in order to prevent reduction to  $Fe^{2+}$ . The samples were water quenched for chemical analysis, and cooled in vacuum or argon when intended for electrical tests. The Mn-Zn ferrite was taken as the basis of development, and squareness ratio and coercive force characteristics are shown for a range of compositions corresponding to the formula  $Mn_yZn_xFe_{3-(x+y)}O_4$ ; x was varied in experiments between 0 and 0.4, Fe content - between 35 and 50% mol, with corresponding variations in Zn content. On the basis of the above preliminary work, the composition of 50% Fe, 20% Zn and 30% Mn was chosen  
Card 1/2

Mn-Mg-Zn square loop ferrites ...

P/035/62/000/009/002/003  
D271/D308

as the starting point. MgO was added to it in varying proportions, at the proportional expense of remaining components. The influence of MgO is shown in characteristics of the squareness ratio and coercive force, in the range of  $\delta = 0 - 0.6$  in the formula  $(\text{MgO})^\delta (\text{Mn}_{0.6}\text{Zn}_{0.4}\text{Fe}_{2.0})_{1-0.5\delta}$ . It was found that  $\delta = 0.4$  gives optimal results when cores are sintered in oxygen at  $1400^\circ\text{C}$ . Squareness ratios greater than 0.9 and coercive force lower than 0.3 oersted were obtained. Further improvement is expected by better control of primary materials and a less abrupt transition from oxygen atmosphere used in sintering to fully neutral atmosphere applied in cooling. The development of usable material was accelerated by the choice of Fe-Mn-Zn ferrite as the basis to which MgO was added. A. Bragiński is thanked for supervision of the work. There are 5 figures.

ASSOCIATION: ZAM PAN (ZAM PAS) (W. Giastoń) WBR, 'Polfer' (J. Kulikowski and S. Nakolagwa)

Card 2/2

P/053/63/000/003/002/003  
E192/E382

AUTHOR: Kulikowski, Jacek

TITLE: Magnetocrystalline anisotropy and magnetic ordering  
in ferrites having spinel structure and containing  
small quantities of cobalt

PERIODICAL: Przegląd elektroniki, no. 3, 1963, 149 - 157

TEXT: Spinel-structure ferrites, containing small quantities  
of cobalt ions, are considered. Basically, two types of ferrites  
are discussed: manganese materials  $Mn_xFe_{3-x}O_4 + \gamma$  and nickel  
ferrites  $Ni_xFe_{3-x}O_4 + \gamma$ . These differ quite clearly in their  
crystalline structure and, secondly, they form the basis of the  
great majority of ferrite cores of high stability, which is due to  
the presence of an adequate state of magnetic ordering. The main  
cause of the appearance of a preferable direction of magnetization  
in ferrite crystals is the spin-orbital moment interaction. Due to  
exchange forces, the spin moments take parallel or antiparallel  
positions with respect to each other. In the majority of simple  
ferrites of spinel structure, distribution of the internal  
Card 1/3

Magnetocrystalline ....

P/053/63/000/003/002/003  
E192/E382

electric field is such that the direction of the preferable magnetization is the direction  $[111]$ . Apart from the cubic magnetocrystalline anisotropy, the ferrites can display a single-axis-induced anisotropy which is due to magnetic ordering of the material as a result of the action of an internal or external field. The existence of this anisotropy results in a so-called "isoperm" or rectangular hysteresis loop, depending on whether the direction of the measuring field is normal or parallel to the direction of the orienting field. Formulas describing these effects are given and some experimental data derived from various authors are shown. It is found that various ferrites show various degrees of magnetic ordering and thus of single-axis anisotropy. The highest value of the induced anisotropy constant  $K_u$  is observed in materials having more than 50 mole.% iron and containing cobalt ions. The induced anisotropy for a system  $\text{Co}_x\text{Fe}_{3-x}\text{O}_4$  increases with  $x$  and has a maximum at  $x = 0.7$ . Similarly, in a nickel ferrite  $K_u$  is strongly dependent on the number of cobalt ions. There are 4 figures.

Card 2/3



Magneto-crystalline ....

P/053/63/000/003/002/003  
E192/E382.

ASSOCIATION: Biuro Badawcze "Polfer" Warszawa  
("Polfer" Research Bureau, Warsaw)

SUBMITTED: November 23, 1962

Card 3/3

MULIKOWSKI, Jacek

Certain properties of excess nickel ferrites containing  
small amounts of cobalt ions. Przegl. ~~elektroniki~~ 4 no.  
5/6: 264-266 My-Je '63.

1. Biuro Badawcze Polfer, Warszawa.

*MULIKOWSKI, Jacek*

POLAND

MULIKOWSKI, Jacek

"Polfer" Research Bureau, Warsaw

Wroclaw, Przegląd elektroniki, No 9, Sept 69, pp 509-519.

"Magnetocrystalline Anisotropy and Magnetic Ordering in Ferrites with Spinal Structure and Small Cobalt Additions".

ACCESSION NR: AP4015999

P/0053/63/000/10-/0658/0662

AUTHOR: Braginski, Aleksander; Kulikowski, Jacek

TITLE: The effect of transient forcing factors on the properties of permnvar ferrites

SOURCE: Przegląd elektroniki, no. 10-11, 1963, 658-662

TOPIC TAGS: permnvar, permeability, permnvar ferrite, permnvar permeability, permnvar ferrite permeability

ABSTRACT: A discussion of the permeability properties of permnvar ferrites in the interval from about 10 to about 100 gauss/oersted based on the example of type U-10, U-30 and U-80 materials. Consideration is given to the limitation of the practical application of permnvar ferrites caused by the action of forcing factors: temperature and the intensity of the magnetic field. Experimental data are discussed and the principal limits of applicability of the three types of permnvar ferrites which are discussed are given.

Card 1/2

KULIKOWSKI, J.

Some properties of Mn and Ni ferrites with the excess of  $\text{Fe}_2\text{O}_3$  and small additions of  $\text{Co}^{2+}$  ions. Bul Ac Pol tech II no.3:133-136 '63.

1. Research Laboratory Polfer, Warsaw. Presented by A.Smolinski.

ACCESSION NR: AP4016605

P/0053/64/000/001/0027/0038

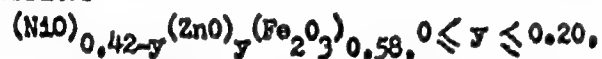
AUTHOR: Braginski, Aleksander; Kulikowski, Jacek

TITLE: Properties of Perminvar nickel-zinc ferrites

SOURCE: Przegląd elektroniki, no. 1, 1964, 27-38

TOPIC TAGS: perminvar nickel-zinc ferrite, magnetocrystalline anisotropy, magnetic arrangement, zinc and cobalt content, permeability and loss coefficient, work frequency, Curie point

ABSTRACT: The paper concludes a cycle of articles on "Magnetocrystalline anisotropy and magnetic arrangements in ferrites having a spinel structure and containing small quantities of cobalt", published in Przegląd Elektroniki Nos. 3 and 9, 1963. It describes the magnetic properties of the group of Perminvar ferrites



containing cobalt admixtures of 0 to 1.5% mol; and shows the dependence of

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ACCESSION NR: AP4016605

permeability upon the zinc and cobalt content, its temperature characteristics, the dependence of losses upon the frequency and the parameters with values characteristic of the Perminvars; the field of opening and the amplitude coefficients of permeability and loss. A careful review of those properties permits the general conclusions that: 1) industrially useful Perminvar nickel-zinc ferrites may be characterized by permeability from a few to 100-150 Gs/Oe; 2) the field of opening and the upper limit of work frequency grow when the cobalt content increases to 1.5% mol, and the amplitude coefficients of permeability and loss diminish accordingly; 3) an increase in the cobalt content shifts the temperature of the point of compensation of permanent anisotropy toward higher temperatures; 4) obtaining the maximum possible arrangement with a given chemical composition of the material depends on the proper choice of temperature and time of heating below the Curie point. Orig: art. has: 11 graphs, 1 table and 3 formulas.

Card 2/3

ACCESSION NR: AP4016605

ASSOCIATION: Biuro Badawcze "Polfer", Warsaw ("Poker" Research Bureau)

SUBMITTED: 31Aug63

DATE ACQ: 05Mar64

ENCL: 00

SUB CODE: GE

NO REF SOV: 000

OTHER: 012

Card 3/3



KULIKOWSKI, Jacek

Square-loop ferritas obtained by magnetic annealing. Przegl  
elektrotech 4 no.4:222-224 Ap '63

1. Biuro Badawcze Polfer, Instytut Maszyn Matematycznych,  
Warszawa.

... properties of induced square loop antenna

Card 1/8

**"APPROVED FOR RELEASE: 08/23/2000**

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when the Gaussian probability distribution of the received signal is not known. Some

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L 20849-66 EWT(1)/EWP(t) IJP(c) JD/HW

ACCESSION NR: AP5017136

PO/0053/65/000/006/0274/0277  
621:318

AUTHOR: Kulikowski, Jacek

TITLE: Role of ferrous ions and vacancies in the magnetic ordering process in iron-rich ferrites containing a small quantity of cobalt

SOURCE: Przegląd elektroniki, no. 6, 1965, 247-277

TOPIC TAGS: nickel ferrite, manganese ferrite, cobalt containing ferrite, ferrous ion, cation vacancy, magnetic ordering

ABSTRACT: The paper describes an experimental investigation of the induced anisotropy of iron-rich nickel and manganese ferrites containing a small quantity of cobalt (1 mol. %). The purpose of the experiments was to determine the role of  $\text{Fe}^{2+}$  and vacancies when the main factor in magnetic ordering is  $\text{Co}^{2+}$  ions. The content of  $\text{Fe}_2\text{O}_3$  in the starting mixture varied within 50-62 mol. %. Pressed pills 12 mm in diameter and 4 mm in thickness were fired at 1250C in an atmosphere containing controlled amounts of oxygen. After firing, the samples were ground to 8 mm in diameter and 2 mm in thickness (about 1 cm<sup>3</sup>). The samples had different concentrations of both vacancies and  $\text{Fe}^{2+}$  ions or of vacancies

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ACCESSION NR: AP5017136

only. The methods for changing the concentration of vacancies and for magnetic annealing of the samples are described. Fig. 1 of the Enclosure shows  $K_u=f(T_H)$  curves, where  $K_u$  is the induced anisotropy constant,  $T_H$  is the temperature of magnetic annealing, and  $t_H=30$  minutes is the duration of magnetic annealing, for two Ni-Fe samples containing 58 mol.% of  $Fe_2O_3$  in the starting mixture, and which differ appreciably in the concentration of vacancies; for one of the samples, fired and cooled in argon, the concentration of vacancies  $f=0$ , and for the other one, fired and cooled in oxygen,  $f \approx 0.06$ . The figure also shows values of  $K_u$  for the first sample after partial oxidation (about 400C for one hour in air). Fig. 2 shows an example of  $K_u=f(T_H)$  curves for  $t_H=30$  minutes, obtained for samples of the same starting composition as those shown in Fig. 1 but containing manganese in place of nickel. Fig. 3 of the Enclosure shows the same curves,  $t_H=30$  minutes, for samples of nickel ferrite having an almost constant ( $1 \pm 0.2$  mol.%) content of  $Fe^{2+}$  but differing in the concentration of vacancies. The results obtained are discussed and it is concluded that both the presence of divalent iron and cation vacancies facilitates the formation of a magnetic superstructure in the ferrite. When the content of  $Fe^{2+}$  ions is large, uniaxial anisotropy can be produced even when the concentration of vacancies is so small that it cannot be detected by chemical means; in order to obtain complete ordering, it is necessary to have a certain minimal quantity of cation vacancies which is, probably, different for different contents of cobalt. "The author thanks Dr. Eng. A. Braginski for valuable discussions." Orig. art. has: 3 figures.

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L 20849-66

ACCESSION NR: AP5017136

ASSOCIATION: Biuro Badawcze "Polfer", Warsaw ("Polfer" Research Bureau)

SUBMITTED: 00

ENCL: 03

SUB CODE: SS, EM

NO REF SOV: 000

OTHER: 002

Card 3/6



L 20849-66

ACCESSION NR: AP5017136

ENCLOSURE: 01

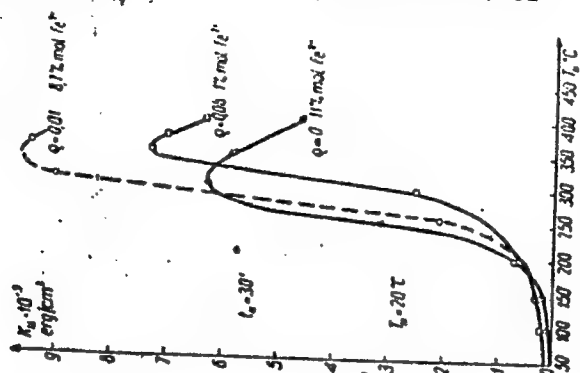


Figure 1.  $K_u = f(T_H)$ ,  $t_H = 30$  minutes, for samples of the same starting composition (58 mol.%  $Fe_2O_3$ , 41 mol.% NiO and 1 mol.% CoO), but having different concentrations of  $Fe^{2+}$  and vacancies.

Card 4/6

L 20849-66

ACCESSION NR: AP5017136

ENCLOSURE: 02

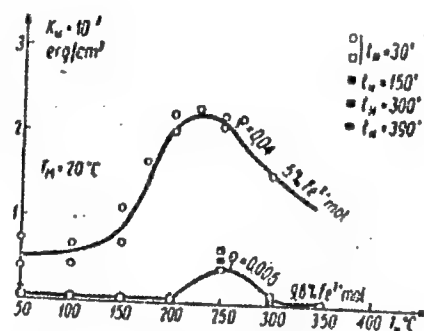


Figure 2. Same as for Fig. 1, but for a manganese ferrite.

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L 26849-66

ACCESSION NR: AP5017136

ENCLOSURE: 03

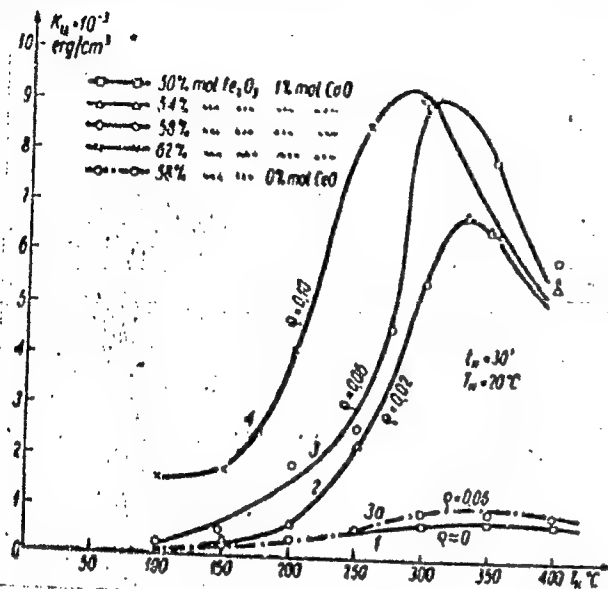


Figure 3.  $K_u = f(T_{II})$ ,  $t_{II} = 30$  minutes, for samples containing approximately the same quantity of  $Fe^{2+}$  ( $1 \pm 0.2\%$ ), but differing in the concentration of vacancies.

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"APPROVED FOR RELEASE: 08/23/2000

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KULIKOWSKI, J.

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000927430005-1"

**"APPROVED FOR RELEASE: 08/23/2000**

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**APPROVED FOR RELEASE: 08/23/2000**

**CIA-RDP86-00513R000927430005-1"**

86661

P/031/60/005/003/003/004  
A224/A026

9.6000 (3702, 1013, 1099)

AUTHOR: Kulikowski, Jan

TITLE: Voltage Sensitivity of Flux-Gate Magnetometers

PERIODICAL: Archiwum Automatyki i Telemechaniki, 1960, Vol. 5, No. 3, pp. 329-354

TEXT: The paper discusses the operational principles and the design of flux-gate magnetometers used for measuring direct magnetic fields of the order of  $10^{-4} \div 10^{-3}$  A/m, where  $1 \text{ A/m} = 4\pi \cdot 10^{-3} \text{ Oe}$ . The author divides the flux-gate magnetometers into two groups: one group with all even-harmonic output, and the other one with one even-harmonic output. He analyzes the group with one even-harmonic output and derives universal characteristic curves for all even harmonics, giving initial voltage sensitivity and deviations from linearity. The formulas derived in this work have been confirmed by testing several magnetometers using an RFA-1j wave analyzer built by the "Radiometer" firm. Practical formulas for calculating maximum initial voltage sensitivity are given. There are 20 figures, 1 table, and 4 references: 3 Soviet and 1 Polish.

ASSOCIATION: Polska Akademia Nauk, Instytut Podstawowych Problemów Techniki, Zakład Elektrotechniki (Polish Academy of Sciences, Institute of Basic Engineering Problems, Department of Electrical Engineering)

Card 1/i SUBMITTED: December 14, 1959



S/194/61/000/011/002/070  
D256/D302

9.6130

AUTHORS: Kulikowski, Jan and Nalecz, Maciej

TITLE: Basic properties of magnetic field modulated transducers

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 11, 1961, 5, abstract 11 A32 (Rozpr. elektro-techn., 1960, 6, no. 4, 475-492 (in Polish; English summary))

TEXT: An analysis is presented of a transducer performance in measurements of weak magnetic fields. A linear approximation of the core magnetization curve was assumed and the sum of the even harmonics in the measuring windings emf was employed as the output quantity. Expressions were derived for calculating the mean value of the transducer output voltage, sensitivity and the dependence of the useful range of measurements upon the geometrical dimensions of the core. A description is given of a transducer measuring system with

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Basic properties of magnetic field...

S/194/61/000/011/002/070  
D256/D302

a mechanical phase-sensitive rectifier and a magneto-electrical  
instrument at the output. 4 references. [Abstracter's note: Com-  
plete translation]

✓  
B

Card 2/2

- Report, Archives Automates et Telemechaniques, Vol. 4, No. 4, 1961.
1. "An Analyzer Using a Delay-Line" Paul J. RILEY and Robert E. RILEY; pp 371-388 (English summary).
  2. "Analysis of Luby's Encipherer as a Complex Control System" Mikhail V. RILEY; pp 389-397 (English summary).
  3. "Some Applications of Decoding Systems of Complement-ary Type with the Directional Elements" J. RILEY; pp 398-408 (English summary).
  4. "Digital Signal Parameters in Telemechanics" Jan RILEY; pp 409-421 (English summary).
  5. "On a Certain Method of Analysis of Delay-Control Systems" Leon RILEY; pp 422-430 (English summary).
  6. "Some Characteristics of a Pulse Controlled DC Motor" John RILEY; pp 431-435 (English summary).
  7. "An Analysis of Follow-up System Operating with the Motor Controlled by Pulse Direction Modulation" John RILEY; pp 436-448 (English summary).
  8. "The Properties of the Thyristor Inverse-Parallel Circuit with Inductive Load" Jerry RILEY; pp 449-471 (English summary).
  9. "Load Characteristics of the Thyristor Rectifier-Applicator" John RILEY and Richard RILEY; pp 472-482 (English summary).
  10. "A Study of Control Properties of Constant-Current Heat Exchanger with One Medium Variable Flow" Yakov RILEY; pp 483-510 (English summary).
  11. "Self-Compensating Ability of Radiated Steam Generator of the Natural Water Circulation" Wladimir RILEY; pp 511-532 (English summary).
  12. "Transient Temperature Distribution of the Parallel Flow Heat Exchanger" Wladimir RILEY; pp 533-540 (English summary).

32210

P/031/61/006/004/009/010  
D271/D301

9.2530

AUTHOR: Kulikowski, Jan, and Malanowski, Kazimierz  
TITLE: Load characteristics of even harmonic magnetic amplifiers  
PERIODICAL: Archiwum automatyki i telemekhaniki, v. 6, no. 4, 1961,  
473-492

TEXT: A phenomenological and analytical study is attempted of an even harmonic magnetic amplifier, taking into account the reverse resistance of the rectifier in the output circuit; voltage sensitivity and power gain are discussed. Fig. 1 shows the device, composed of two cores with three windings each: excitation ( $Z_p$ ), input or control ( $Z_s$ ), and output ( $Z_w$ ). An approximation of the hysteresis loop is assumed as shown in Fig. 2; permeability is assumed to be finite and constant. When the transducer is excited by a.c., an application of control current  $I_s$  causes the displacement of magnetization characteristics of both cores. Five conditions occur

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Load characteristics of...

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in each half-cycle: state (1) both cores saturated; (2) first core de-saturated; (3) both cores de-saturated; (4) first core saturated; (5) second core saturated. Output voltage exists only in states (2) and (4), de-saturating pulses occur in state (2), saturating pulses in state (4). The maximum value of de-saturating pulses is much smaller than that of saturating pulses. Output voltage depends on the control current in state (1) only; it is independent of events in preceding half-cycles, and this makes the transducer a quick-acting element. Voltage gain is

$$K_U = \frac{z_s C_U}{R_s l_m} \frac{dU_w}{dH_s} \quad (4)$$

where  $z_s$  is the number of turns of the control winding,  $R_s$  --amplifier input resistance,  $l_m$  --mean path length,  $C_U$  --proportionality factor.

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Load characteristics of...

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$U_w$  -- mean value of the saturating pulse,  $H_s$  -- field strength due to the control current. The derivative in Eq. (14) is the voltage sensitivity of the amplifier. The phase discriminator in the output nearly stops the current due to de-saturating pulses, except for a very small reverse current. Maximum voltage sensitivity is

$$\zeta_{U \max} = \frac{dU_w}{dH_s} = 4 f z_w S \mu \quad (29)$$

and the sensitivity for small signals is

$$\zeta_U = \zeta_{U \max} \left( 1 - e^{-\frac{R_w}{2X_w} \omega t_3} \right) \quad (32)$$

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D271/D301

Load characteristics of...

where  $z_w$  is the number of turns of the output winding,  $S$  -- cross-section of the core,  $R_w$  -- resistance of the output circuit in states (2) and (3),  $X_w$  -- reactance of the output circuit,  $\omega t_s$  -- the instant of saturation of the first core. Output current is

$$I_w = \frac{z_s}{z_w} \frac{\omega t_s}{\pi} I_s, \quad (40)$$

and this is valid when  $R_w \ll 2X_w$ . The equivalent impedance of the output circuit is defined as an output voltage with no load divided by output current with short-circuited terminals

$$X_{wz} = \frac{U_w}{I_w} = \frac{2X_w}{\omega t_s} \quad (42)$$

Card 4/5

Load characteristics of...

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and in most cases

$$X_{wz} \cong 2X_w \quad (43)$$

By comparison with experiments, it was found that

$$\delta_U = \delta_{U \max} \frac{1}{1 + \frac{2X_w}{R_w \omega^2 L_3}} \quad (44)$$

agrees better with experimental data than the previously given Eq. (32); voltage sensitivity decreases as if equivalent impedance were purely resistive of the same value. Sensitivity and load characteristics, measured and computed by Eqs. (32) and (44) are shown. If a finite inductance of  $L_{3d}$  and an infinite resistance  $R_w$  are assumed, voltage sensitivity

Card 5/9



Load characteristics of...

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P/031/61/006/004/009/010  
D271/D301

becomes

$$\delta_{\Pi} = \frac{\delta_{\Pi \max}}{1 + \frac{2 L_g}{L_{sd}}} = \delta_{U \max} \frac{L_{sd}}{L_{sd} + 2 L_g} \quad (50)$$

where  $L_g$  is the inductance of the input winding when the core is de-saturated. Maximum output power with a full-wave rectifier in the output circuit is

$$P_{w \max} = \frac{U_w^2}{4(\pi r_w + r_{p'})} \quad (52)$$

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D271/D301

Load characteristics of...

where  $r_p$  is the rectifier forward resistance and the load is matched to  $2r_w + r_p$ . Power amplification is dependent on the choke  $L_{sd}$ ; theoretically, the optimum value of  $L_{sd}$  is between  $2L_g$  and  $4L_g$ , but the experimental optimum is about  $6L_g$ . Reverse resistance of the rectifier discriminator must be high ( $R_{ws} \geq 2X_w$ ); otherwise, voltage sensitivity and power gain are decreased. A circuit is shown in which the measurements were executed. There are 11 figures and 8 references: 2 Soviet-bloc and 6 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: P. O. Atkinson, A. N. Hemingway, An Even-Harmonic Magnetic Amplifier and Some Applications to Measurement and Control, Electronic Engineering, Vol. 26, 1954, No. 321, 482-485; E. H. Frost-Smith, The Theory and Design of Magnetic Amplifiers, London, 1958, §11, §12; E. H. Frost-Smith, The Study of Magnetic Inverter for Amplification of Low-Input-Power D. C. Signals, Proc. IEE, Vol. 100, Pt. II, 1953, 362-375; B. W. Jalbert, An Analysis of the Operation of the Magnetic

Card 7/9

32210

Load characteristics of...

P/031/61/006/004/009/010  
D271/D301

Modulator, Trans. AIEE, Vol. 79, Pt. 1, 1960, 268-272.

ASSOCIATION: Zakład elektrotechniki IPPT Polskiej akademii nauk (Electrotechnical Laboratory IPPT of the Polish Academy of Science), and Zakład miernictwa elektrycznego i automatyki instytutu elektrotechniki (Electrical Measurement and Automation Laboratory of the Electro-technical Institute)

4

SUBMITTED: June 15, 1961

Card 8/9

KULIKOWSKI, JAN

SURNAME, Given Names

Country: POLAND

Academic Degrees: / not given/

Affiliation: / not given /

Source: Warsaw, Rozprawy Elektrotechniczne, Vol VII, No 2, 1961, pp 277-288

Data: " Equivalent Circuits of Flux-Gate Magnetometers with all-even Harmonic Output"

Authors:

KULIKOWSKI, Jan

NALECZ, Maciej

35

GPO 961643

KULIKOWSKI, Jan

Even harmonic transducers. Rozpr elektrotech 8 no.3/4:407-502  
'62.

1. Zaklad Elektrotechniki, Polska Akademia Nauk, Warszawa.

KULIKOWSKI, Jerzy, dr inż.

Radial short-circuit forces in transformers with asymmetric  
cylindric wirings. Przegl elektrotechn 41 no.3:86-88 Mr '65.

KULIKOWSKI, Jerzy, dr inż.

Influence of the dimensions of the windows on the axial short-circuit forces in transformers. Przegl elektrotechn 40 no.10:434-439  
O '64.

1. Department of Electric Machines and Transformers, Technical  
University, Lodz.

16 4100  
6.9200

S/194/62/000/002/071/096  
D271/D301

AUTHOR: Kulikowski, J.

TITLE: A method for approximating the correlation function of passive interference

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 2, 1962, abstract 2-7-12i (Prace Przemysł. inst. telekomun., 1960, v. 10, no. 31, 29-32)

TEXT: A method is proposed for approximating the correlation coefficient  $\rho(\tau)$  of a stationary random process by means of the function  $\tilde{\rho}(\tau)$ . This function must satisfy the usual conditions:

$$\tilde{\rho}(0) = 1, \tilde{\rho}(\infty) = 0, \tilde{\rho}(-\tau) = \tilde{\rho}(\tau), \tilde{\rho}(\tau) \leq \tilde{\rho}(0) \text{ when } \tau \neq 0, \tilde{\rho}'(0) = 0$$

The last condition is the consequence of the requirement that the random process which is to be approximated must be capable of differentiation. Besides, the moments of the function  $\tilde{\rho}(\tau)$  must meet

Card (1/3)



A method for approximating ...

S/194/62/000/002/071/096  
D271/D301

the following conditions:

$$m_v = \int_{-\infty}^{\infty} \tau^v \tilde{\rho}(\tau) d\tau = \begin{cases} 2 \int_0^{\infty} \tau^v \tilde{\rho}(\tau) d\tau & \text{when } v \text{ is even} \\ 0 & \text{when } v \text{ is odd} \end{cases}$$

Taking into account the above conditions, double-sided Laplace transform of the function  $\tilde{\rho}(\tau)$  is first found and moments  $m_v$  are calculated. Then, through an inverse transformation, an approximate expression is obtained for  $\tilde{\rho}(\tau)$ . As an example, the approximation is considered in detail of the correlation coefficient of the type  $\rho(x) = \exp(-x^2/2\tau_0)$ , by means of the function

Card 2/3

A method for approximating ...

S/194/62/000/002/071/096  
D271/D301

$$\tilde{p}(\tau) = 1,637 \exp\left(-1,096 \frac{|\tau|}{r_0}\right) \sin\left(0,8087 \frac{|\tau|}{\tau_0} + a\tau \operatorname{ctg} 0,7776\right)$$

The graphs which are shown testify to the high accuracy of the approximation. 8 references. [Abstracter's note: Complete translation.]

Card 3/3

6.9408

S/194/62/000/002/072/096  
D271/D301

AUTHOR: Kulikowski, J.

TITLE: Description of the statistical properties of the phase  
by means of periodically-normal functions

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika,  
no. 2, 1962, abstract 2-7-12ts (Prace Przemysł. inst.  
telekomun., 1960, v. 10, no. 31, 33-37)

TEXT: Moment functions usually serve as numerical characteristics  
of single-peak probability densities which do not greatly differ  
from normal probability. For the probability densities which are  
periodical functions of their arguments, it is recommended using  
coefficients of Fourier expansion of the probability density, as  
numerical characteristics. It is discussed whether such represen-  
tation is possible for the probability density of the random phase  
of an oscillator and of the random phase of narrow-band noise. So-  
called periodically-normal functions are used which are associated  
with deriving functions of the probability density. 6 references.

✓  
B

/[-Abstracter's note: Complete translation.]

Card 1/1

S/194/62/000/007/096/160  
D271/D308

AUTHOR: Kulikowski, Juliusz

TITLE: Some problems in the calculation of inverse covariance matrix of passive radar interference

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1962, abstract 7zh97 (Rozpr. elektrotechn., 1961, v. 7, no. 3, 315-322. [Pol.; summaries in Rus. and Eng.])

TEXT: Some practical methods are considered for the determination of coefficients of the matrix which defines the quadratic Hermite form appearing in the index of the multi-dimensional normal probability distribution. These coefficients directly define an amplitude transfer function of a linear filter inserted into a coherent receiver in front of the detector. The calculation method is based on the use of properties of 'bilateral Z-transformation'. The author considers cases of multi-channel reception and reception with varying repetition frequency of sampling pulses of a radar station. Conclusions are illustrated by a number of practical examples. [Ab-Card 1/2

Some problems in the calculation ...  
stracter's note: Complete translation.]

S/194/62/000/007/096/160  
D271/D308

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30571

P/019/61/010/003/002/008  
D206/D305

6.9700

AUTHOR: Kulikowski, J.

TITLE: A generalization of the "ideal observer" criterion

PERIODICAL: Archiwum elektrotechniki, v. 10, no. 3, 1961, 723-727

TEXT: The new criterion for optimum reception of threshold signals, as discussed, may be of use in analyzing conditions of signal and interference relation with static parameters, having unknown characteristics. In the statistics theory of the reception of radio-location signals, Siegert's criterion of the "ideal observer" is used which is based on the demand for the minimization of the error of detection: ✓

$$P = P_{f.a.} + P_{ba.} = p_0 \int_{\Omega_1} w(y|0) dy + p_1 \int_{\Omega_0} w(y|1) dy = \min_{(\Omega_0/\Omega_1)} \quad (1)$$

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A generalization of the ...

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D206/D305

where  $P_{f.a.}$  = probability of "false alarm";  $P_{b.a.}$  = probability of "lack of alarm";  $p_0$  = probability of an a priori "lack of signal";  $p_1 = 1 - p_0$  = probability of an a priori "presence of signal";  $\Omega_0$  and  $\Omega_1$  - regions of decision of "lack of signal" and "presence of signal" respectively and complementary in space;  $w(y/0)$  and  $w(y/1)$  - conditional functions of density of probability of receiving signals "y", under conditions of "lack of signal" and "presence of signal" respectively. The practical application of the criterion which is dependent on minimization of the expression (1) has many drawbacks, so far not resolved satisfactorily. Therefore, one more method is given which leads to a simple and physically interpretable solution of the problem of optimum reception. Assuming that the density functions  $w(y/0;\xi)$ ,  $w(y/1;\xi)$  depend on a parameter  $\xi \in E$ , whose exact a priori value is unknown and cannot be determined statistically, i.e. distribution of probability of the parameter is unknown. It is assumed that approximate values of the unknown parameter can be described as:  $D_0 = (\xi_0 - \Delta, \xi_0 + \Delta_2)$ . It is also

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30571

P/019/61/010/003/002/008  
D206/D305

A generalization of the ...

assumed that functions  $w(y/0;\mathcal{E})$  and  $w(y/1;\mathcal{E})$  contain partial differentials with respect to the components of vector  $\mathcal{E}$  for point  $\mathcal{E}_0$  in medium  $D_0$ . Take as the exact value of parameter  $\mathcal{E} = \mathcal{E}_0$  and minimizing quantity  $P'$ ; the method of optimum reception can then be determined

$$P' = p_0 \int_{\Omega_1} w(y/0;\mathcal{E}_0) dy + p_1 \int_{\Omega_1} w(y/1;\mathcal{E}_0) dy \quad (5)$$

The linear increment of the probability of detection error

$$\Delta P_{\max} = |\mathcal{E} - \mathcal{E}_0| \left\{ p_0 \int_{\Omega_1} \left| \frac{d}{d\mathcal{E}} w(y/0;\mathcal{E}) \right| dy + p_1 \int_{\Omega_0} \left| \frac{d}{d\mathcal{E}} w(y/1;\mathcal{E}) \right| dy \right\}_{\mathcal{E}=\mathcal{E}_0} \quad (8)$$

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A generalization of the ...

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$$Q_2 = P' + \Delta P_{\max} \quad (9)$$

$$Q_2 = P_1 \int_{\Omega_0} \left[ w(y|1;\xi) + \lambda \left| \frac{d}{d\xi} w(y|1;\xi) \right| \right] \xi = \xi_0 \, dy \quad (10)$$

where  $\lambda$  is fixed and positive in value, is represented as  $\lambda = (\Delta_1, \Delta_2)$ . The optimum reception condition can be materialized in the meaning of the criterion of the "ideal observer" when the expression for  $Q_2$  is minimum. There are 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: J.L. Hodges, E.L. Pehman: The use of previous  
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A generalization of the ...

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D206/D305

experience in reaching statistical decisions, Ann. Math. Stat.  
vol. 23, no. 3, (1952); Lawson, Uhlenbeck: Threshold signals. MIT  
lab. ser. vol. 19.

SUBMITTED: July 8, 1960

Card 5/5

S/058/62/000/007/057/068  
A062/A101

AUTHOR: Kulikowski, J.

TITLE: On the optimum reception method under phase interference conditions

PERIODICAL: Referativnyy zhurnal, Fizika, no. 7, 1962, 15, abstract 72193  
("Prace Przemysł. inst. telekomun.", 1961, 11, no. 34, 1 - 7, Polish;  
Russian, English and French summaries)

TEXT: The author discusses the optimum reception method of radar signals by coherent systems in the case when the phase of the useful component of the received signal is not exactly known. Methods of realizing such systems, operating under phase interference conditions, are briefly described.

[Abstracter's note: Complete translation]

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P/031/62/007/003/001/013  
D201/D308

AUTHOR: Kulikowski, Juliusz

TITLE: Problems of statistical optimization of extremal control systems

PERIODICAL: Archiwum Automatyki i Telemechaniki, v. 7, no. 3-4, 419-433 - 1962

TEXT: The author considers the problems from the point of view of making the decision operations independent of random fluctuations of the input and analyzes the means of describing the statistical properties of the object to be controlled. In the most general case, these properties are described by a stochastic operator which exists if a general relationship between the input function and the probability density functions of the observed and of the non-observed outputs are given. An analysis is also given of optimizing the decisions and of some problems of optimization of decision sets. A new design of decision circuit is suggested for the case when the dynamics of the system can be simplified and a high

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Problems of statistical ...

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degree of statistical accuracy is not required. The author concludes that one the main difficulties with systems having complicated dynamic properties is the determination of statistical properties of the non-linear stochastic operator describing the object. This problem is not solved in the literature. From the practical point of view some of these difficulties could be avoided by applying the Monte Carlo method for the determination of optimum controlling functions. There are 7 figures. /B

ASSOCIATION: Politechnika Warszawska Katedra Techniki Fal Ultra-  
krotkich (Warsaw Polytechnic Department of UHF  
Engineering)

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KULIKOWSKI, J.

Statistical properties of signals in monopulse radar systems of the amplitude type. Przem inst telokom prace 13 no.41:1-7 '63.

1. Katedra Techniki Fa Ultrakrotkich, Politechnika, Warszawa.

KULIKOWSKI, J. L.

Property analysis of a self-optimizing receiving system  
for detecting harmonic signals with unknown phase. Przem  
inst telekom prace 14 no. 44:11-16 '64.

1. Department of Radiolocation, Technical University,  
Warsaw.

P/0019/64/013/001/0015/0024

ACCESSION NR: AP4039449

AUTHOR: Kulikowski, J. L.

BR

TITLE: A nonparametric device for the detection of binary signals

SOURCE: Archiwum elektrotechniki, v. 13, no. 1, 1964, 15-24

TOPIC TAGS: Pearson Type III function, probability function, probability theory, mathematical statistics, signal detection, nonparametric detection device, noise detection, statistical communication theory, Chi-square test, nonparametric statistics, radar, radar signal

ABSTRACT: The operating principles of a radar signal device, based on statistical checking of nonparametric hypotheses, is examined. The problem deals with the binary detection of signals of an unknown shape or unknown statistical properties on a background of clutter whose statistical properties are also unknown. The case of Markovian type signals with completely unknown probability density functions is analyzed. A system operating on the basis of Pearson's Chi-square test is described. The non-parametric decision-making systems differ from the majority of the generally known systems in statistical sampling theory. Their intrinsic advantage is univer-

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sality based on the ability to employ nonparametric devices in a very wide range with respect to the statistical properties of signals and clutter. The universality is offset by some deterioration of the reception quality in some individual cases. An examination of some fragmentary data in the pertinent literature indicates that this deterioration is not large enough to prevent the use of nonparametric systems where actually the reception of a prior information about a signal and clutter could be impossible. "In conclusion, I wish to thank the reviewer of this article. Professor Doctor Jerzy Seidler, for a number of valuable hints." Original article has: 2 figures and 19 equations.

ASSOCIATION: Katedra Radiolokacji Politechniki Warszawskiej (Department of Radar, Warsaw Polytechnic Institute)

SUBMITTED: 14Jun63

DATE ACQ: 18Jun64

ENCL: 00

SUB CODE: DC

NO REF SOV: 001

OTHER: 013

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